2-2 Linear Equations
2-3 Slope

Linear equation--variables cannot be multiplied together or appear in the denominator; exponent should be one

Graph-line

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Standard Form--Ax + By = C, where
A $\geq$ 0 and A and B are both not zero
A, B, C $\in$ Z whose GCF is 1

Slope-intercept form y = mx + b

m - slope
b - y-int (0, b)

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Put the following in standard form:

ex 1:
y = 3x - 9

$3x - y = 9$

ex 2:
$\frac{-2}{3}x = 2y - 1$

$-3\left(-\frac{2}{3}x - 2y = -1\right)$

$2x + 6y = 3$

ex3:
8x - 6y + 4 = 0

$8x - 6y = -4$

$4x - 3y = -2$

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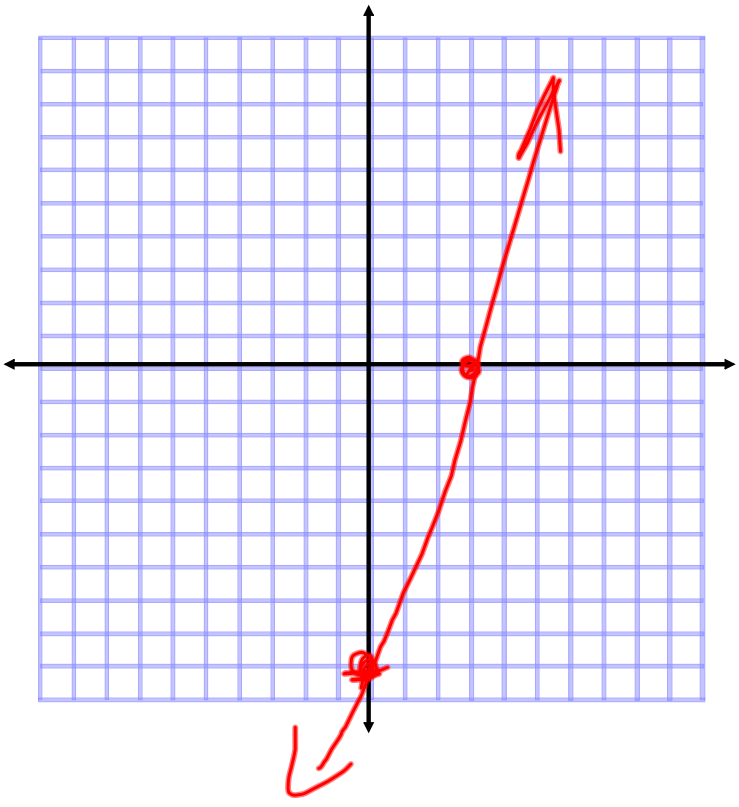
Graph using intercepts.

ex 1

$3x - y = 9$

$(0, -9)$

$(3, 0)$



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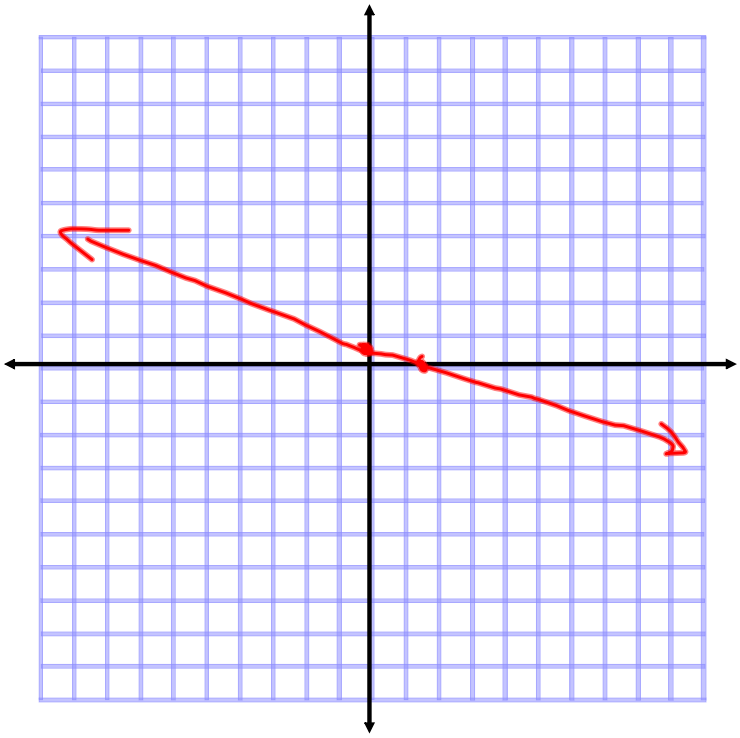
Graph using intercepts.

ex 2

$2x+6y=3$

$(0, \frac{1}{2})$

$(\frac{3}{2}, 0)$



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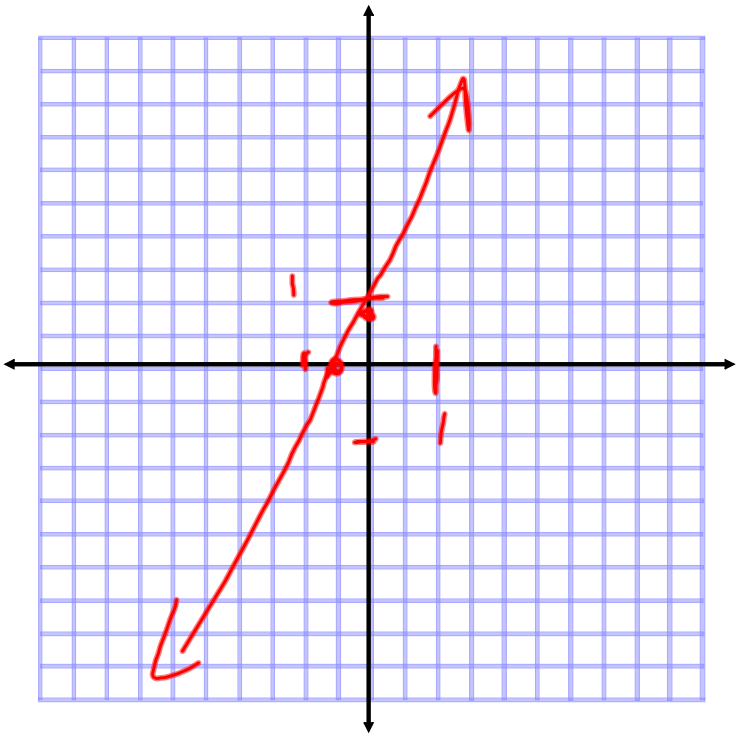
Graph using intercepts.

ex 3

$4x-3y=-2$

$(0, \frac{2}{3})$

$(-\frac{1}{2}, 0)$



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How else do you graph?

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Slope

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{\text{rise}}{\text{run}} = \frac{\Delta y}{\Delta x}$$

Calculate the slope for:
(1,3) and (-2,-3)

$$m = \frac{3 - -3}{1 - -2} = \frac{6}{3} = 2$$

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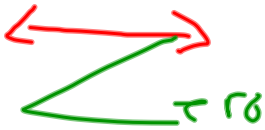
Special slopes:

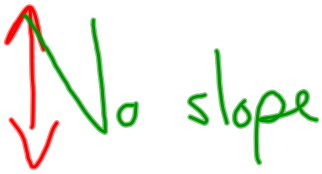
Horizontal Line

$m = 0$



Vertical Line

slope undefined



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Graphing:

$y = mx + b$

$y = \frac{1}{2}x + 2$

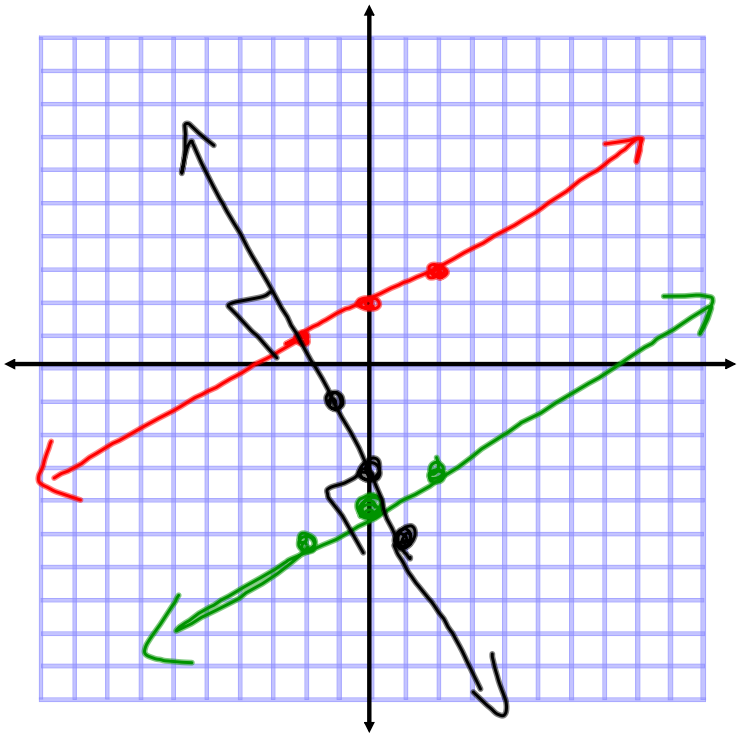
$m = \frac{1}{2}$ $(0, 2)$

$y = \frac{1}{2}x - 4$

$m = \frac{1}{2}$ $(0, -4)$

$y = -2x - 3$

$m = -2$ $(0, -3)$



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Parallel lines have same slope

Perpendicular lines

slopes are opposite reciprocals

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HW

p66

27-37odd, 43-49odd

p71-72

9-11, 15-25odd

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